Procurement

Unit 2:
Procurement Methods in Construction

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UK construction industry generally recognises

3 standard approaches:

1. Traditional procurement
2. Design & build/construct procurement
3. Management procurement
Procurement

Some of the non-traditional procurement systems commonly found in Singapore are:

1) Design & Build/Construct Option
Procurement

Some of the non-traditional procurement systems commonly found in Singapore are:
1) Design & Build/Construct Option
2) Construction Management
These 3 alternative Construction Procurement Methods are often referred to as procurement *routes or paths*.

There is no procurement path that offers a *best solution for all circumstances*. Each method may be ideal for some of the client’s priorities, but less appropriate for others.
Procurement

The ‘Traditional’ Procurement Route

- Consultants appointed for design
- Consultants appointed for cost control
- Main contractor is selected for the work
Traditional Method – Organisation Chart

Client

Design Team
(Architect + Consultants)

Main Contractor

Domestic sub-contractor

Nominated sub-contractors
The Traditional route

Sequence (not to scale)

- Brief
- Design
- Competition (tendering)
- Construction
The Traditional route

- Client
  - Main Contractor (standard lump sum contract)
    - Named Subcontractors (standard lump sum)
    - Subcontractors (standard lump sum)
    - Suppliers (various contracts)
  - Consultants (fee contracts)
  - Architect (fee contract)

- Contractual relationship
- Administrative responsibility on behalf of client
Traditional procurement route
Traditional procurement route

**Advantages:**
- Known Lump sum cost
- Best contract price
- Firm completion date
- Client retains control over design and quality.
- Variations and contract changes are identifiable.

**Disadvantages:**
- Design, then Bid, then Build
- Too often, delays
- Too often, budget is overspent
- Too often, disputes
Traditional Method: Characteristics

- Has operated in UK, the commonwealth and other parts of the world - reasonably satisfactory
- Understood by most the clients - client is aware of its financial commitment at the time when accepts the builder’s offer price
- Architect has considerable freedom to conceive and develop the design without excessive time or economic pressures. Not exceeding cost ceiling; satisfy client’s requirement
Traditional Method: Characteristics (cont’d)

- Project cost can be estimated, planned and monitored by the QS - from inception to completion

- Other consultants such as structural engineer, landscape architect, services engineers, acoustic consultants, Interior Designer etc are brought in to advise on the project

- Architect is able to consult specialist contractors and suppliers
Traditional Method: Characteristics (cont’d)

- Contractors may be invited to submit **competitive tenders** to the Clients

- Drawings and BQ provides common basis for competitive tenders from selected contractors

- BQ rates in the contract can be used to determine the additional costs in the event of changes required by the client.
Traditional Method : Characteristics (cont’d)

- Contractor may think that their abilities to organize and control are being undermined by the nominated process; sub-contractors are less loyal to the contractor than the Architect.

- The separation of the design and construction process tend to reduce the team spirit. Contractor does not feel ownership to the design.

- Lines of communication between the parties tend to be tenuous. Interests of all may suffer as a consequence.

- May not be satisfactory for some large and complex projects - which require advanced management system, structure and skills.
Traditional Procurement variant

There are three (3) main variations:

1. **Traditional sequential** - Contractors tender on completed design and cost bill documents

2. **Traditional accelerated** - A contractor is appointed on the basis of partial information, by negotiation or in competition - *sometimes known as “two stage tendering”*

3. **Traditional with remeasurement** – A re-measurement contract based on *approximate quantities fixed contract period lump sum price*. This approach enables project out to tender early but loses cost certainty since the cost risk between the final measured and the approximate quantities rest with the Client.
Steps to successful building procurement

The seven (7) steps to successful building procurement:

1. Selecting an in-house project executive
2. Appointment of a principal adviser
3. Identifying the client’s requirements
4. Timing the project realistically
5. Selecting the procurement path
6. Choosing the organisations to work for the client
7. Selecting the right site
Contracts and Procurement

Steps to successful building procurement

Selecting an in-house project executive

- People with developed project management skills
- Managing the total process of planning, design and construction.
- Be available full time for the project
- Be the single point of contact for the organisation
- Understand and organise the internal decision making process required for the project
- Have the power to speak and act for the organisation
Contracts and Procurement

Appointment of a principal adviser

» Required if a full time in-house executive is not available.
» Can be sourced externally
» Can be from any of the professional organisations. Architect, engineer, QS, project manager etc
» Quality of the principal adviser is crucial to the success of the project.
» The role is to complement the skills available within the client organisation
» To supply impartial advice on the requirement to build and how best to proceed
Identifying the client’s requirements

- If the **client** is unable to describe exactly what he requires of the final building, it is difficult for him to have **what he wants**
- Important to establish the client’s requirement in a process called “**Brief**”
- The design team is to **determine** size, specifications, layouts, space requirements, suitability of building proposals for client’s needs etc.
Identifying the client’s requirements

- The information enable the design team to prepare preliminary drawings and cost estimates, which leads to final designs and firming up costs.
- Information gathered may also determine which procurement path is most suitable.
- It is vital that the client’s in-house executive and/or principal adviser carry out an assessment of specific criteria before the appointment of the design team.
Identifying the client’s requirements (Cont’d)

- Timing may be top priority due to funding or completion date requirements
- Funding is crucial if a building is required to generate income eg. supermarket, factory, or hotel
- Completion date is critical when it is dictated by an advertised opening date eg sate set by international sports event, conference etc
Variation

- Could be due to insufficient or incorrect tender/contract information from the design team.
- Client – earlier indecision regarding issues to be determined by him before tendering
- Changes in the client’s requirements
Complexity

- Complexity of construction and of the environmental services are important in deciding procurement.
- Not necessary the complexity of the function of a building, has to be assessed on a specific basis early in the project life.
Contracts and Procurement

Identifying the client’s requirements (Cont’d)

**Product**

- Quality of materials and workmanship – can be set by specifying them to the required level
- Quality of the **design concept** – combines objective criteria such as function, ergonomics and economy, subjective matters such as aesthetics.
Identifying the client’s requirements (Cont’d)

**Price**

- Price means entire cost of obtaining building encompassing *site costs, client management/monitoring costs, and financing costs*.
- **Certainty of the costs** of the above elements.
- Price certainty is a relative term because many market forces like tender price, interest rates, and general *inflation rates* may change significantly during the construction period.
Identifying the client’s requirements (Cont’d)

**Competition**

- Design, management and construction services can be obtained by **competition**
- Individuals or firms compete on the following:
  - On price, in open tenders
  - On quality of service, reputation and price in selected tendering
  - On quality of service and reputation in negotiated tenders
Identifying the client’s requirements (Cont’d)

**Responsibility**

- In the traditional procurement method, the responsibility for design and construction has been split. *Design team for the design, and contractor for the construction*

- IN design and build, or design and manage – *only one organisation is responsible for both design and construct*
Identifying the client’s requirements (Cont’d)

Risk Avoidance

- Allocation of responsibility to another organisation, eg Contractor (Novation)
- IN design and build, or design and manage – only one organisation is responsible for both design and construct
Procurement

Timing the project realistically

- Clients need to know what is realistic in terms of the time required to undertake the design and construction of the building
- Clients needs to consider the following actions to ensure speed in building:-
  - organise decision making process in order not to hold up progress
Timing the project realistically (Cont’d)

- Clients needs to consider the following actions to ensure speed in building:-
  - organise **decision making process** in order not to hold up progress
  - consider the value of the **time saving** and compare it to the **extra cost**
  - **Clarity and firmness of the design brief are essential**
  - Selecting contractor and designers with care
  - Establishing **good relationship** with those people they employ
  - Bonuses and incentives rather than penalty for delay
  - Client should take a strong interest in the progress of the project
Case Study

“PDCE” is a privately owned large hotel chain in the Singapore. They offer comfortable accommodation across the Singapore and are committed to preserving their rich heritage therefore they are very passionate about the outlook of their hotel buildings. PDCE have a strategy of adopting neglected landmark buildings and bringing them back to their former magnificent look. Subsequently, the hotel management board (Client) is experienced at renovation of buildings.
A recent period of bad weather and severe storms has resulted in three Cinnamon Grand hotels being significantly destroyed.

All destroyed hotel buildings are located in prime locations in town settings. In August 2012, the hotel management board agreed to reconstruct the destroyed buildings to create a vibrant and attractive environment that can be enjoyed by all.

The hotel management is keen on taking this unexpected event as an opportunity to improve the quality of buildings and facilities provided. The design solutions will be developed along similar lines adopted for previous hotel buildings, but the intention is to reconstruct the three hotels to a better quality than they were before the severe storm.

To be in line with the client’s policy on architectural significance and aesthetics of the buildings, PDCE have to invest a great deal of time, money and effort to ensure that reconstruction is always sensitive and does not compromise the dignity of the buildings and services provided.
Case Study

The Client has decided to obtain finance from a Commercial Bank which is estimated at S$120 million. Although the nature of damage significantly varies from one building to another, all sites will require the demolition of a number of existing structures that are not structurally sound enough to retain and reconstruct. The Client decides to undertake the three buildings under two phases:

In phase 1, the completion date is critical, as the buildings require handover by 28th February 2015 at the very latest, due to the opportunity cost of closing down business following the storm damage. The planned start date on site is 1st March 2014. Therefore the priority should be given to rapid reconstruction of following key areas of the hotels which makes them re-open to business within a short period of time (planned reopening is scheduled on 1st April 2015):

- Roofs
- guest rooms
- restaurant
- swimming pools
In phase 2, the intention is to enhance opportunities for health and well-being of the visitors through new facilities. The following facilities will be newly constructed under this phase:

- dance studios
- health and fitness centre
- conference and meeting rooms
Case Study

Other key issues

- Although PDCE is use to dealing with the construction of hotel buildings, they do not have an in-house executive who is either experienced enough or is able to devote sufficient time to advise the reconstruction of their properties. Therefore, risk avoidance/allocation is most important.

- The Client is highly concerned about possible project delays and overrun of costs beyond their budgeted allowances. Price certainty is most important. The final price is required to be known as nearly as possible, at the outset. Value for money given the current economic climate is also a key consideration.

- During the phase two of the reconstruction, they must provide a good service to their hotel guests while the construction is going on.

- Quality of the buildings is very important to the Client, as their reputation was founded on quality of accommodation and service. Reconstruction works would have to match an existing hotel or even better.

- Complexity is a significant issue in the second phase of the work. Conference and meeting rooms require high technology multimedia facilities with air conditioning.
Case Study

Discussion Question:

Does Traditional Procurement Route suite the PDCE clients?
Case Study

Refurbishment

New construction
Case Study

Phase One

Phase Two
Case Study

- Traditional Procurement Route

  This route is widely used across the world- In this route, design is developed by the Architect/consultant- The design will be completed fully and subsequently the construction will commence- The construction is carried out by the contractor (different party) appointed by the client through tendering process-
Case Study

Strength

This route enables to have more certainty of the cost of the budget at the initial stage of the project. The final price for the project will be known once after the tendering process due to lump sum contract. This route can satisfy the client’s secondary concern that is ‘cost’.

Weakness

This route will demand more time for completion of the project since 3 stages (Designing, tendering and construction) are completed separately. Relevant this project, the duration is only one year for the P1 and this will not route will not allow client to complete within time even though the route is accelerated.

The design quality of the building will not be as expected since the designing party is different from the construction contractor. There will be different attitude “them and us” between the design team and construction team which may result in weak communication. Therefore the quality has high risk for the client.

There will chances of cost overrun in this procurement route in the event of any variation in the design. The change leads to more cost implications for variation orders.
Analysis

- There is high risk in the timely completion
- Design and quality has medium risk since the client does not have control over it
- This route is suitable for clients primary objective is cost and secondary objective is quality
- It is more suitable for client does not have similar project experience and have lavish time
- Therefore, this procurement route is not at all recommended for “PDCE’ Client for this project-
- This particular route helps establish strong groundwork on quality but it is not worth the trade off in the area of completion time as the project will have to be fully developed and only after a strenuous bidding process that construction will be underway.
Client will have knowledge about design with the help of which client will monitor throughout the design phase. Before tendering a detailed design is needed which will help client to gain experience while developing the project. This method coupled with client's knowledge about design can yield a good result.
Case Study

The requirements for the project is constraint in Time and Budget, therefore the traditional procurement will be not be applicable for this characteristics. This is has been proved from the various studies conducted and industry practices from the previous successful projects. Therefore, non-traditional routes will more feasible for the procurement route. Sanvdo 1998, study proved that the non traditional procurement route such as Design & Build benefit the project in improve of schedule completion and cost growth compared to traditional procurement route.
End of Unit 2

See you next class..................